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**UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/042,417 03/13/98 WOLRICH

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TM02/0716

EXAMINER

JOSEPH H. BORN, ESQ.
CESAIR AND MCKENNA, LLP
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BOSTON MA 02110

BACKER, F	
ART UNIT	PAPER NUMBER

2155
DATE MAILED:

07/16/01

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

GM

Office Action Summary

Application No.

09/042,417

Applicant(s)

WOLRICH ET AL.

Examiner

Firmin Backer

Art Unit

2155

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2001.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 18) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

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Response to Request for Reconsideration

This is in response to a request for reconsideration file on May 11th, 2001. Claims 1-7 are being reconsidered in this action.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-7 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,018,756. Although the conflicting claims are not identical, they are not patentably distinct from each other because

3. The only difference between these two claimed inventions is that in claim 1, the limitation "a normalization-shift-determination circuit that determines a required normalization shift by generating a possible-shift-point-vector signal comprising a plurality of bit signals representing respective bits of a possible-shift-point vector, each bit in the possible-shift-point vector corresponding to a different bit position in the input operands' mantissas, the value of each

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bit signal in the possible-shift-point vector being determined only from at most three, consecutive bits of the each input operand's mantissa, and applying to the processing trains a normalization-shift signal representing the position of the most-significant one bit in the possible-shift-point vector" is omitted, Clearly, applicant is attempting to obtain a broader coverage in the claim of the application.

4. It is well settled that then omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. In re Karlson, 136 USPQ 184 (CCPA 1963). Also note Ex parte Rainu, 168 USPQ 375 (Bd. App 1969). Omission of a reference element whose function is not needed would obvious to one of ordinary skill in the art.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S. C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Lynch (U.S. Patent No. 5,901,076).

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7. As per claim 1, Lynch teaches an addition pipeline (arithmetic unit), adapted for application of first and second operand signals, each of which represents the sign, exponent, and mantissa of floating-point input operand, for performing an effective addition or subtraction on the input operands and generating an addition-pipeline output signal representing the result (see abstract, fig. 2, 3, and column 1 line 7-10, 4 lines 12-55), the addition pipeline comprising a mantissa adder (adder/subtractor, 110) for application of first and second mantissa signals respective mantissa values (see fig 2, 3, column 4 line 12-55), perform addition and subtraction on the mantissa values and generate a mantissa adder output (see abstract, fig 2, 3, column 2 line 35-3 line 10, 4 line 12-55), mantissa processing circuit for generating and applying mantissa input operands to the mantissa adder, subtracting a pair of mantissas when they are offset to the left by one position from the applied mantissa signals and add when the pair of mantissas are the same (see abstract, fig 2, 3, 4, column 1 lines 25-67, 3 line 35-3 line 10, 4 line 12-55, 6 lines 25-41).

8. As per claims 2, 3 Lynch teaches an addition pipeline wherein the main mantissa adder performs a normalization shift in one direction (to the right only) when necessary to produce an output within predetermined normalization limits capable of performing the normalization shift in only one direction (see abstract, fig 2, 3, 4, column 1 lines 25-67, 3 line 35-3 line 10, 4 line 12-55, 6 lines 25-41).

9. As per claim 4, 7, Lynch teaches an addition pipeline wherein the mantissa processing circuitry comprises a pair of processing trains for generating first and second processed mantissa signals from input operands' mantissas, each processing train performing a shift, for at least a

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plurality of input-operand-value pairs, that is one more position to the left for an effective subtraction than for an effective addition (see abstract, fig 2, 3, 4, column 1 lines 25-67, 3 line 35-3 line 10, 4 line 12-55, 6 lines 25-41).

10. As per claim 5, 6, Lynch teaches an addition pipeline wherein the mantissa adder includes rounding circuit operable in at least one rounding mode to add a rounding bit and being capable of adding the rounding bit at a selected one of only two bit positions in a given rounding mode (see abstract, fig 2, 3, 4, column 1 lines 25-67, 3 line 35-3 line 10, 4 line 12-55, 6 lines 25-41).

Response to Arguments

11. Applicant's arguments filed May 11th, 2001 have been fully considered but they are not persuasive.

a. Applicant respectfully requests the withdrawal the finality of the last office action. Applicant argues examiner rejected the claims on two new grounds and a final action is not appropriate. Examiner respectfully agrees with the applicant and would like to inform the applicant that the last office action on record was not made final. Any final notice should be regarded as an error.

b. Applicant also requested reconsideration and withdrawal of the double patenting rejection of claims 1-8 based on U.S. Patent No. 6,018,756. Examiner respectfully disagrees with the applicant characterization of the double statue. The fact that only one

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limitation differentiates the claimed inventive concept and the published patent make proper for a obviousness double patenting rejection.

c. Applicant further argues that examiner confused Applicant's differential preshift with conventional alignment shifting. Examiner respectfully disagrees with the applicant characterization of the inventive concept disclosed. In independent claim 1, it is unclear that such inventive concept is disclosed in the application the manner in which the disclosure is made seem to reflect conventional alignment that is fully disclosed Lynch (5,901,076) patent. Lynch disclosed in column 1 lines 25-46 before actually performing an addition or subtraction operation upon the mantissas of the numbers, since the numbers are typically normalized, the relative magnitudes of the exponents must be compared to align the mantissas, if necessary. If the two exponents are equal, thus indicating that the mantissas are already aligned, the arithmetic operation can be effectuated by directly adding (or subtracting) the mantissas according to the desired operation. However, if the exponents are not equal, then the mantissa with the smaller exponent is typically shifted to the right by a number of positions equal to the difference between the exponents. Once the mantissas have been aligned, an arithmetic operation of addition or subtraction may be performed upon the aligned mantissas in accordance with the desired operation. Subsequently, post normalization of the result is carried out. It is noted that subtraction may be carried out by two's complementing the subtrahend and performing an addition operation.

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Conclusion

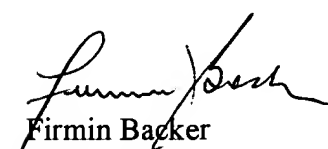
12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

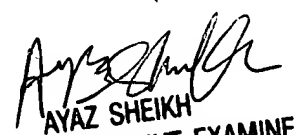
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Firmin Backer whose telephone number is 703-305-0624. The examiner can normally be reached on Mon-Thu 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sheikh Ayaz can be reached on 703-305-9648. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3718 for regular communications and 703-305-5352 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.


Firmin Backer
July 10, 2001


AYAZ SHEIKH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100